

RELATIONSHIPS IN MEDICINE BETWEEN
ASIA AND THE WESTERN WORLD*

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SEVENTEEN years ago this month, Professor Allen O. Whipple read a memorable paper before the Section on Historical and Cultural Medicine, on the "Role of the Nestorians as the Connecting Link Between Greek and Arab Medicine." He told us how the Aramean priest Nestorios became Patriarch of Constantinople in 428 A.D., how he came into conflict with the orthodox fathers of the church because of his heretical doctrines, and was deposed at the Council of Ephesus in 431. It was his followers who came to be called Nestorians. They first moved to Edessa in upper Mesopotamia, east of the Tigris, and, later, settled in southwestern Persia at Gondi-Sapor. Here the Persian school of medicine flourished from 530 A.D. until the end of the tenth century. The diplomats of that school treated the Prophet and the first Khalifs. It was from Gondi-Sapor that medical emissaries moved west to Salerno where the first organized medical school in Europe grew up. Here indeed was an early relationship in medicine between Asia and the Western World. After Salerno, Bologna was founded and, after that, Padua.

It was a hard world when the Christian era began. Long before the reign of the emperor Augustus, earlier Asian kings had been seeking to exploit the whole world. One is reminded of Nebuchadnezzar, the Babylonian sovereign, who erected a golden image and sought to force people of every race to fall down and worship it. There were gracious kings as well, like Asoka of India, who ruled in the Mauryan Empire to the far north, ascending the throne in 273 B.C., fifty years after Alexander the Great had died in Babylon. He set a pattern for health that has made historians speak of his reign as the golden age of Indian medicine. Asoka's system, based on Buddhist teaching, laid tremendous emphasis on the sanctity of all life. He reduced the allowance of flesh for the

* Read at the Section on Historical and Cultural Medicine, The New York Academy of Medicine, January 14, 1953.
Manuscript received January 1953.

royal household "from thousands of animals daily to two peacocks and a deer, and even this amount was soon abolished." Our good friend Dr. Albert Schweitzer, with his deep reverence for life, would have been a great admirer of Asoka. He laid out medical gardens everywhere and grew in them healing herbs imported from other lands. Travelers were well cared for, banyan trees were planted along the great highways to give shade to man and beast, and wells were dug by the roadside at frequent intervals.

Asoka was the first builder of charitable hospitals for man and animals. These early hospitals preceded by four or five centuries the first hospitals on Christian foundations. They stood as a sign of visible and practical concern for human suffering.

Even before the reign of King Asoka, when Alexander the Great invaded India in February, 326 B.C., he found Hindu physicians and surgeons so skillful that he retained some of them at his court for emergencies. The duties of an army surgeon were noted as these: "When the king goeth forth with his army, he shall take with him a skillful physician, who must see to the food, water, wood, and places of encampment. If he find poison he must remove it, and so save the army from death and destruction. His tent shall be near the king's tent, and there shall be a flag over his tent, so that the sick, poisoned, or wounded may find him quickly." During the first five hundred years of the Christian era there lived Charaka, the most eminent of the early Hindu physicians; Susruta the most famous of all Indian surgeons; and Vagbhata. These three were known as "the three great medical authorities of the present cycle of the universe."

Some of the early Chinese rulers, like Wu Ti of the early Han dynasty sent out expeditions both to subdue neighboring tribes and to get priceless commodities for the Middle Kingdom. "Go and fetch them," they were ordered. And what they found when they fared forth enriched the rest of the world. They helped diverse traditions and cultures to meet each other. It was this mutuality that proved one great step in advance for the World Planners after World War I. They realized that to win and maintain peace there must be a meeting of the minds and hearts of peoples. Problems of suffering and unemployment are urgent, to be sure; but relief as such, no matter how generous, does not lead to lasting good will unless there is also present a mutual appreciation of one another's cultures.

This is the principle underlying what we speak of today as the Point Four Program, which is concerned far more with Time and People than with Things and Money.

In the great Asian nations of China, India, and Iran, the main roots of the national medicine are cultural. They are tied into the social fabric, into the art and literature of each nation. These roots of the national medicine thus prove to be a mirror of the life of the people. Thus, in China, these social relationships are evident in each period of history. In pictures or sculptures of the forefathers of Chinese medicine, whether in temples or elsewhere, the relationship of medicine to the social structure of the nation becomes evident. Medicine throughout Asia has a social philosophy and a metaphysical approach that we of the West know little of and scarcely appreciate.

It was on a cold Sunday morning, February 22, 1784, that a curious crowd gathered on a pier in New York City to watch the *Empress of China* hoist sail, fire a thirteen-gun salute and sail slowly out to sea, bound for China.

China! For centuries the name had stood for riches and romance, for silks and tea, for gold and jade and fine porcelain. Now for the first time a ship flying the American flag was leaving to enter direct trade with that far land of the Orient. No wonder the crowd regarded the event as memorable.

The more we get to know of the real China, not the Communist-dominated government of today, but the true Chinese people, the more eager we shall be to discover the full extent of our debt to them, in art and literature, in philosophy and in medicine.

It was not only American indifference that lessened the opportunities for contact between China and America but excessive Chinese self-approval as well. In 1722 the reign of K'ang Hsi ended. Ten years later his grandson, Ch'ien Lung, became the Emperor. Near the end of his reign the British sent an envoy to China asking the ruler to recognize an ambassador who might live in Peking and look after British interests throughout China. Ch'ien Lung made this very high-sounding reply:

"Our dynasty's majestic virtue has penetrated into every country under Heaven, and kings of all nations have offered their costly tribute by land and sea. As your Ambassador can see for himself, we possess all things. I set no value on things strange or ingenious and have no use for your country's manufactures. This, then, is my answer to your re-

quest to appoint a representative at my court, a request contrary to our dynastic usage, which would result in inconvenience to yourself."

The more we inquire, the more we shall understand how it was possible that, over the gateway of one of the northern cities of China, centuries ago, armies coming in from Mongolia read the inscription:

"ENTRANCE TO CIVILIZATION"

We of the Western world have scarcely learned to think of the Orient as one of the great centers of civilization in the universe.

Consider the invention of paper:

"In ancient times in China writing was generally on bamboo or on pieces of silk which was then called *chih*. But silk being expensive and bamboo heavy, these two materials were not convenient. Then the privy counsellor, Ts'ai Lun, thought of using tree bark, hemp, rags and fish-nets. In the first year of Yuan Hsing (A.D. 105), he made a report to the Emperor on the process of paper making and received high praise for his ability. From this time paper has been in use everywhere and is called 'the paper of Marquis Ts'ai.' "*"

When Thomas Carter first came in contact with the Chinese farmers he was amused to find that their children knew more about the seasons and various harvests, about grains and animal husbandry, than he did with his Princeton Phi Beta Kappa, cum laude, and three years of graduate studies. He found in these simple folk who had never looked inside a book, a veneration for learning which well matched that of his own Scottish ancestors. He came to feel that there was as great a need for an interpretation of the civilization of the East to the West as for the West to have its interpreters in the East.

My own first voyage up the Yangtze River, in 1905, remains unforgettable. It was the first of many voyages of discovery. We sailed from Shanghai early one morning and were out on the broad stream before noon. Vessels lined both sides of the river and the captain called me up on the bridge to point out their variety. "That large ship," he said pointing to a huge junk, "is carrying salt up into the interior. Those other junks headed downstream are bringing digitalis from the western province of Szechuan down to the coast to be reshipped to America and Europe." He went on to tell me that after tinctures and tablets had been made they would be sent out and sold in China. Every year in China, I discovered unexpected varieties of Chinese drugs, some of

* Carter, T. F. *The invention of printing in China*. New York, Columbia Univ. Press, 1925, p. 3.

them herbs, some of them minerals, and others of animal origin. It took the Chinese many centuries to become familiar with the flora of their own country. Their knowledge of species increased from the early days onwards. The original herbal was prepared by Shen Nung (legendary date B.C. 2952) and listed 250 plants with their uses. In fifty-five centuries this list grew to 816. This herbal of the 16th century was regarded so important as to make it a fitting offering to one of the great Emperors of the late Ming dynasty. The expansion of knowledge was brought about in certain definite ways. In every part of the land there was continued observation of local flora and fauna and a study of their uses in the service of man. There was also continuing description of wild and cultivated things made by travelers and writers. Yet the understanding of the flora of China still remains incomplete. One of our foundations has just made a grant to the Arnold Arboretum at Harvard to provide for a fresh, extensive study of China's flora.

Those of you who have crossed Nebraska by the Union Pacific Railroad will doubtless remember a little local stop, Alfalfa City, and may have wondered about the origin of that plant. It was described by the late Berthold Laufer, in his massive volume "Sino-Iranica." He tells of a military mission, B.C. 138, which was designed to subdue the Huns but which also brought back to China two of its great vegetable treasures, the grape and alfalfa. The fine horses of Iran had thrived on alfalfa, and the leader of the expedition, General Chang Ch'ien, who had obtained possession of a large number of the Iranian thoroughbreds for his master, was wise enough to take enough alfalfa seed to plant in the palace grounds. The general also recognized the great value of the grape as a food and as a source of excellent wine. This was introduced into the province of Shansi where wine-making remains an essential part of the local industry. Laufer continues to describe plants which are not of west Asian origin: the walnut, coriander, pepper, cucumber, chive, carrot, and many others. By studying the prefixes to the names we can discover how many botanical elements were brought from China to the west by the overland route: the peach, apricot, ginger, rhubarb, tea, cinnamon, as well as saltpetre and kaolin.

Many of the flora were introduced into China from Arabia, and because of their Muslim origin have the prefix *hui*. Thus, both fennel and anise, as well as chive, carry a prefix indicating their Arabic and Muslim origins. These stories of plants bring us not only medical his-

tory but stories of culture drift. Thus, the cocoon of the silkworm was brought to Europe by monks in their hollow staffs.

China sent many articles of vegetable and mineral origin to India, such as camphor, alum, arsenic, etc. These are recorded in Buddhist works. We read that a large group of Indian Buddhist monks went over to China in B.C. 217. While there may be a dispute as to the actual date of the introduction of Buddhism into China, we know that not later than the first century A.D. Buddhist monks came over. The Chinese themselves have reliable records of their own pilgrims who traveled overland to India, reputedly before 639 A.D. In the last named year it was the pilgrim Hsuan Tsang who made the most memorable journey. All these travelers have recorded observations of the flora and fauna of the places which they visited. Thus, we have records of the obvious association that Buddhism had with such things as sandalwood and lotus. The sacred *Ficus religiosa* was the tree under which Buddha sat and preached. In China there are many centers where this p'u t'i tree is honored. This name comes from the Indian word Buddhī or wisdom.

In the early days religion and medicine were closely associated and we find the arts and crafts absorbing many of the flora which might be used for dyeing. Opium (a-fyun) was introduced into China from Arabia or Iran, perhaps as early as the Sung dynasty (900-1200 A.D.). It is entirely possible however that a narcotic like opium was known in prehistoric times, associated with the secret rituals of the early tribes. It is probable that initiation was accompanied in some countries with the use of drugs. Opium was undoubtedly known to the early travelers.

While numerous noteworthy discoveries for the healing of the sick have been made during recent years, medical science still owes much to the people of the past for the accumulated knowledge of many remedies and cures. Primitive medicine was nearly always empirical. Sometimes it was superstitious but often was based on keen observation. Such observations when confirmed and thoroughly experimented with then become sound principles in modern medicine. An example of this is to be found in the prevention of smallpox. Many centuries before Edward Jenner introduced vaccination in 1796, the inoculation of smallpox pus had been known in India and China, in Arabia, and in Africa. Still another example of sound observation is found in the introduction of the foxglove or digitalis. The leaves of the plant had long been known in China to diminish body fluids in dropsy, and it was in 1775 that William

Withering started its use in medical practice in England. Doctor Withering found an old family recipe which led him to investigate the curative values of digitalis, which has now become an indispensable drug in relieving the symptoms of certain cardiac disorders.

In Chinese civilization there is a very rich flora of curative materials. Some of these, such as camphor, cinnamon, anise, and rhubarb, have already been admitted to modern pharmacopoeias. There are however many other drugs in China which were believed in that country to have unlimited curative value but which have never been subjected to careful critical inquiry in the West. It is such investigations that are called for now and are bound to bring fruitful results. The recent introduction of *Ma Huang* into Western medicine is a good illustration. *Ma Huang*, botanically *Ephedra sinica*, is an herb that grows wild on the northern and western frontiers of China. It has been known in Chinese medicine since antiquity. At least 3000 years ago Shen Nung tested this drug and admitted it to his ancient herbal. The drug is believed to produce sweating, reduce fever, stimulate the circulation and relieve cough. It has long been an ingredient of several famous prescriptions, one of them used in the treatment of a disease similar to typhoid.

Ma Huang (*Ephedra sinica*) without nodes—10 catties Apricot
Kernels (*Prunus armeniaca*) blanched—4 sheng Rhubarb (*Rheum
officinale*)—1¼ catties Snow Water

Detailed instructions were given for making an extract of the above crude drugs and finally dividing the mass into pills. The efficacy of this remedy was believed to depend on the power of *Ma Huang* to produce perspiration. Chinese always believed that perspiration was a means of reducing fever. Usually, *Ma Huang* was prescribed with other crude drugs and made into a decoction, and ordered to be taken by the patient as such. Prior to 1887 little else was known about the status of this ancient drug. It was a Japanese chemist who in 1887 isolated the pure principle which has since been called ephedrine. Many Japanese scientists discovered that this drug would dilate the pupil but they did not recognize other aspects of its clinical use. For the next thirty-five years scientists were largely concerned with determining the chemical composition of *Ma Huang*. They established its structural formula and achieved a synthesis, but went no further.

In 1923, Drs. Carl F. Schmidt and K. K. Chen, while working at the Peking Union Medical College, began to study a group of potent drugs

suggested to them by a Chinese druggist, in whose list *Ma Huang* was found. So the two scientists bought a small sample from a Chinese drugstore, made a decoction of the drug and injected a portion of it into a narcotized dog left by a group of students after their laboratory exercise; they at once observed a prolonged rise of blood pressure. The result of this first experiment aroused their enthusiasm and stimulated them to carry out exhaustive inquiries. They soon found that ephedrine would contract the mucous membranes of the nose. This led to its use in the treatment of rhinitis and hay fever. During the decade ending in 1930 there was a rapid development of publications on ephedrine and a vast increase in the amount of shipments abroad. The ancient drug *Ma Huang* has risen to prominence and many workers in China have now found for themselves a new calling in making annual collections of *Ma Huang*, which is shipped in bales to all parts of the world. It may be safely said that the study of *Ma Huang*, and subsequently of ephedrine, furnishes one more example in medicine where a traditional belief has become a rational therapy. Moreover, it represents one of the most international types of human endeavor. The crude drug is of Chinese origin but the active principle was isolated by a Japanese scientist. The constitution of ephedrine was explored and established by several Germans and Japanese, while other aspects of the inquiry were achieved by Frenchmen and Austrians. The pharmacological investigations were initiated by Japanese scholars and a thorough study was made by an American and a Chinese. Some of the clinical tests leading to the proper use of ephedrine were made by Americans working with Canadians.

Chinese medicine is really a cultural element in society, a mirror of the people's attitudes; this connection is evident in each period of Chinese history. Thus, three great figures, known as the forefathers of Chinese medicine, are constantly shown together, whether in paintings or in temple images: Fu Hsi, the founder and philosopher; Shen Nung, the one who related agriculture to medicine; and Huang Ti, the Yellow Emperor, who related inquiry and observation to medicine. Fu Hsi is credited with being the author of the *Pa Kua*, the Eight Diagrams. These were revealed, so tradition has it, to Fu Hsi while riding on the back of a supernatural animal that rose from the waters of the Yellow River. These diagrams have been used for at least three thousand years to symbolize the processes of nature, and are a feature of all Taoist dis-

cussions of astrology, alchemy and medicine. In the center of the Eight Diagrams one finds a circle, within which an S-shaped line separates two fish-like shapes, the *Yin* (black) and the *Yang* (white), which represent the primal forces of nature. The whole figure is a charm or talisman, used in a variety of ways to ward off disease and evil spirits. Fu Hsi is to be remembered because he organized the people and taught them how to live securely within a framework of social regulations. He is known as the builder of the life of the people, within which medicine was a necessary element.

Shen Nung, the second of the triad, was known as the Divine Agriculturist. Not only did he examine the soil and teach his people how to till it; but when sickness spread, he searched for remedies ceaselessly, so much so that it became a common saying: "Shen Nung daily tasted a hundred herbs." He laid the foundations of the pharmacopoeias of which China has boasted for some three thousand years.

Hwang Ti, the Yellow Emperor, was the third of the three notables. To him is attributed the *Nei Ching*, Canon of Internal Medicine, a work that is an even greater contribution to China's medicine than his social regulations. The work falls into two parts, the first being named *Su Wen*, Familiar Conversations. These are really dialogues between the Emperor and his able minister Chi Pai. In one of these we read: "The good man in most ancient times held Heaven and Earth in his hand and grasped light and darkness, breathing pure air and preserving the spirit in its perfection, for his flesh was obedient to his spirit. Because of this he was able to attain immortality like that of Heaven and Earth." Another paragraph reads: "The sages did not treat those who were already ill; they instructed those who were not yet ill. . . . To administer medicines when diseases have already developed is comparable to the behavior of persons who begin to dig a well after they have become thirsty. Is not such action too late?"

Chinese medicine is not to be judged merely by its elements of magic and superstition or by its cosmic and animistic theories. It was a reflective philosophical system, always thinking of man in his relationships to the vegetable and animal kingdoms as well as to man and other animals. Rather than being a truly experimental system, the experimental elements in it were only fragmentary and occasional. If the example of those who created its earliest life had been followed, it would have advanced immeasurably; but there appeared in the environment numerous

factors that prevented, rather than facilitated, the spirit of inquiry. Thus, animism was followed by Taoism with its emphasis on alchemy and the search for immortality through transmutation of certain elements, such as mercury into gold. After this came Confucianism, with its ethical emphasis and its strict ceremonial practices. Buddhism followed, teaching asceticism and a future life after passing through an infinite series of punishments. Among the sins for which definite and horrible penalties were provided were the taking of bodies from graves and the desecration of the human frame. None of these factors was conducive to true scientific research.

And yet, though not a land of experimentation, China is a land of learning. Every literary man has received some training in the principles of medicine. Throughout the centuries, medicine has received honor in the thought life of the nation. Every dynastic history, and the annals of every province and county, make mention of local developments in the realm of medicine. It is noteworthy that when Shih Huang Ti, the unifying emperor of China, ruler of the state of Ch'in, "burned the official chronicles of the different feudal states, including *The Classic of Poetry* (Shih Ching), *The Classic of History* (Shu Ching), and the discourses of the teachers of the philosophical schools, the only books excepted from his proscription, were those on divination, on medicine, on agriculture and arboriculture, and the official chronicles of the state of Ch'in."

One of the striking facts in Chinese medicine is the emphasis on diet. Beriberi was known in China as early as 2600 B.C. but its dietary treatment was only shown conclusively as recently as 1880. During the Mongol dynasty in China there was an illustrious scholar, Hu Ssu-Hui, who wrote in detail about the dietary treatment of "wet" beriberi and of "dry" beriberi. In his remarkable book "*Principles of Correct Diet*," each page has an inscription in one corner, "food cures various diseases." The Chinese have been noteworthy among the nations in their descriptions of the way many conditions should be treated; what the diets should be for pregnant and lactating women, for children at different seasons of the year and during various mental states.

Both China and India have contributed to medicine by great stress on careful diagnosis, and on physical therapy. In both countries, their systems of medical thought, while truly philosophical in conception, have led to practical procedures of real value in both diagnosis and

treatment. While it is true that the development of Greek and Arabic medicine formed much of the basis of European thought and teaching, yet the Chinese stream of medical thought, much older than the Greek and Arabic, was proving adequate to the needs of a far-eastern Asiatic civilization. We are only at the threshold of an adequate understanding of this development. It remains for the medical historian to press forward to explore the documents, still at hand for inquiry; and for the pharmacologist to explore the therapeutic values of the hundreds of medicinal substances that have come out of Asia, so that there may be fuller understanding of the Relationships in Medicine Between Asia and the Western World.

**CONFERENCES ON DRUG ADDICTION
AMONG ADOLESCENTS ***

The Proceedings of two Academy-sponsored conferences on teen-age drug addiction may now be obtained in book form. Over 50 experts representing various professions and agencies, each concerned with drug addiction, contributed to a comprehensive approach. Among the points considered: the report of a new drug for the detection of narcotics addiction, the role of education in the prevention of adolescent drug use, and the designation of narcotics addiction as a "disease of deprivation."

Copies of the book, entitled **CONFERENCES ON DRUG ADDICTION AMONG ADOLESCENTS**, may be obtained from The Blakiston Company, 575 Madison Avenue, New York 22, New York. The price of the book is \$4.00.

* Held under the auspices of the Committee on Public Health Relations of The New York Academy of Medicine.